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Prevalence of Depression and Stress-related Anxiety among Adults during the COVID-19 Lockdown: A Study in Ishaka Municipality, Bushenyi District, Western Uganda

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ABSTRACT

The COVID-19 pandemic has not only posed significant challenges to physical health but has also brought about substantial mental health burdens worldwide. This study aimed to assess the prevalence of depression and stress-related anxiety among adults aged 18-40 during the COVID-19 lockdown in Ishaka Municipality, Bushenyi District, Western Uganda. A cross-sectional study design was employed, with data collected from 170 participants through researcher-participant interviews. The prevalence of depression and stress-related anxiety was found to be 57%, indicating a high burden compared to pre-pandemic rates. Factors associated with higher rates of depression and anxiety included female gender, older age, marital status (separated, divorced, or widowed), lower education level, unemployment, family history of depression, and underlying medical conditions such as cancer. These findings underscore the importance of addressing mental health needs during public health emergencies like the COVID-19 pandemic. Routine screening and management of mental illnesses, along with targeted interventions to support vulnerable populations, are crucial for mitigating the psychological impact of such crises. Longitudinal studies are recommended to explore causal relationships between depression, anxiety, and underlying health conditions further.

Keywords: Covid-19, Depression, Mental health, Prevalence, Stress-related anxiety, cross-sectional study.

INTRODUCTION

A novel Coronavirus type (2019-nCoV) was identified as an etiological agent in cases of pneumonia of indefinite cause seen in the Chinese city of Wuhan on 31 December 2019. The virus subsequently spread rapidly across the world and led to the pandemic known as COVID-19 [1-3]. Although the virus was first seen in China, countries in the European and American continents are the most affected. On January 30, the World Health Organization (WHO) declared the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, also known as COVID-19) outbreak a public health emergency of international concern. In only one month, at least one thousand cases had been reported in five different countries. On March 11, WHO declared the disease caused by COVID-19 a pandemic due to its widespread and rapid rate of transmission. This is the third respiratory pandemic illness of the 21st century. The first was the severe acute respiratory syndrome (SARS) in 2003, which resulted in more severe symptoms and a higher death rate than COVID-19 [4]. However, the rapidly forming situation of the COVID-19, the rate of transmission, and the number of people infected in over 150 countries, to date, created an unprecedented situation of global proportions [5]. Health pandemics mobilize

all resources of local and national health care systems in an effort to manage those infected and prevent the spread of the disease. Few health care systems acknowledge the significance of mental health intervention as a key pillar in effective disease management [6, 7]. In light of lack of vaccination or community immunization and in order to limit the rate of the spread of the infection during the escalation phase of the pandemic, several governments have imposed movement restrictions and social distancing measures [8].

Certain risk and protective factors are likely to be implicated in pandemic-related mental health. COVID-19-related worry (e.g., maintaining employment, getting tested for coronavirus) may be linked to mental health symptoms. The early weeks of the pandemic saw rapid changes in daily routines, with students moving following university closures and attending classes remotely, and for other young adults, transitioning to remote work or facing job loss. These disruptions may put an already vulnerable group at greater risk for mental health challenges [9]. Furthermore, loneliness may be particularly prevalent and devastating during the pandemic given directives for social distancing and isolation. Those under the age of 25 already show elevated levels of

loneliness, and the pandemic may exacerbate these feelings. Despite the critical role that social support plays in mitigating the risks to mental health problems, directives on social distancing may impede on one's typical means for obtaining such support [10]. Individual resilience, which refers to one's ability to cope with stress, and distress tolerance and also describes one's ability to manage and tolerate emotional distress, may be salient characteristics that protect against the mental health symptoms that follow major stressors [11]. Individual resilience is a significant protective factor for depression, anxiety, and general health after natural disasters [12].

Study Design

The study design was a cross-sectional.

Study Area

The study was carried out at Ishaka, Bushenyi district western region Uganda, which is located in Igara County, approximately 62 kilometers (39 miles), by road, west of Mbarara, the largest city in the sub-region. This is about 6 kilometers (4 miles), west of Bushenyi, the location of the district headquarters.

Study Population

The study population was adults aged 18 – 40 years in Ishaka, Bushenyi district western Uganda.

Inclusion Criteria

This study only included adults aged 18 – 40 years in Ishaka, Bushenyi district western Uganda, and willing to consent.

Exclusion Criteria

This study excluded people aged less than 18 years in Ishaka, Bushenyi district western Uganda, and those that did not consent to take part in the study were excluded also those that are above 40 years of age.

Sample Size Determination

Sample size was calculated using Fishers' [14] formula,

$$N = \frac{Z^2 PQ}{D^2}$$

Where N is the desired sample size

Z is the standard normal deviation taken as 1.96 at a confidence interval of 95%.

P is the prevalence = 12.7%

D is the degree of accuracy = 0.05.

Q = (1-P) which is the population without the desired characteristics = (1-0.127) = 0.873

Socio-demographic Characteristics of the Study Participants

From table one below, the total number of the participants is 170. Having 61.2 % male and most of the participants aged 26-33 years taking 53.5% of the total study population, majority were married/ Co-habiting having 44.7%, 59.4% of the study population

Findings have generally demonstrated distress tolerance to be associated with lower symptoms of depression, anxiety and PTSD following tornadoes [13]. However, the extent to which covid-19 affect the mental health of people during a pandemic is unknown, for this reason this study sought to find out the prevalence of stress, anxiety and depression due to covid-19 total lockdown. Prevalence of depression and stress related anxiety due to Covid-19 lockdown among adults aged 18-40 of Ishaka Municipality-Bushenyi District, Western Uganda is the main aim of this journal.

METHODOLOGY

$$N = \frac{1.96^2 \times 0.127 \times 0.873}{0.05^2} = 170.3688$$

Therefore 170 respondents were a representative sample to take part in this study.

Sampling Method

Simple random sampling was used to select respondents so that each respondents got a chance to participate in the study to avoid bias.

Data Collection Methods

Data was collected chiefly through a researcher-research participant interview, the data collected was tabulated and in a way that reflected the study objectives.

Data Analysis

Microsoft excel spreadsheets and SPSS was used for data analysis. The data was presented in form of percentages, charts, tables or graphs with univariate, bivariate or multivariate analytical method.

Ethical Consideration

This relates to moral standards that was considered in the research at all stages. This study avoided any potential risks that may arise due to leakage of personal information. We ensured that participants would not provide any of their names in the research instruments so as not to violate their privacy and avoid bias. Approval was provided by the research and ethics committee of Kampala international university. Participant in this study were not in any way forced to take part in the study. Detailed information about the study was explained to the participants, after understanding all the details, informed consent forms was issued and they consent before partaking in the study. Every respondent was given equal opportunity to participate in the study.

RESULTS

were residence of Ishaka metropolis and primary education was the level of the education of most of the study participant representing 44.1% and most of the study population had no formal employment representing 60%.

Table 1: Socio-demographic characteristics of the study participants

Variables	Frequency (n=170)	Proportions (%)
Sex		
Male	104	61.2
Female	66	38.8
Age(years)		
18-25	53	31.2
26-33	91	53.5
34-40	26	15.3
Marital Status		
Married/ Co-habiting	76	44.7
Never married	40	23.5
Widowed	11	6.5
Separated/ divorced	43	25.3
Place of Residence		
Outside Ishaka	69	40.6
Within Ishaka	101	59.4
Education Level		
None	8	4.7
Primary	75	44.1
Secondary	68	40
University/Technical	19	11.2
Employment Status		
Employed	27	15.9
No formal employment	102	60.0
Unemployed	41	24.1

Biological/ Clinical Characteristics of Study Participants

Table two below shows underlying medical conditions among the participants may coexist or can be the attributing factors for depression and anxiety during the Covid-19 lock down among the study participants. The table showed that 25.9% of the participants take alcohol which is the highest

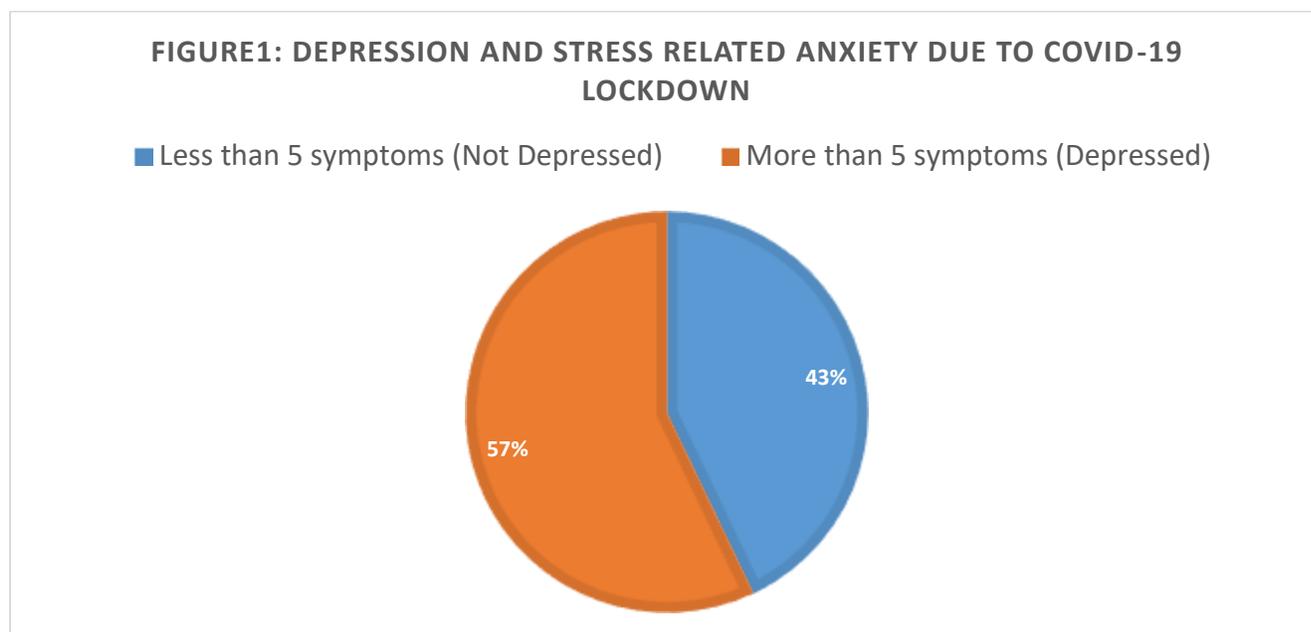
percentage among all the assessed variables, 19.4% among the study group reports to have respiratory related disease, family history of depression among the study participants was found to be 7.1% however cancer, heart related diseases was found to be less than 2% and diabetes was found to be 6.4% among the study population.

Table 2: Biological/ clinical characteristics of the study participants

Variables	Frequency (n=170)	Proportions (%)
Cancer		
Yes	2	1.2
No	168	98.8
Unknown	0	0.0
Diabetes		
Yes	11	6.4
No	159	93.5
Not sure	0	0.0
Heart related diseases		
Yes	3	1.8
No	167	98.2
Respiratory related diseases		
Yes	33	19.4
No	135	79.4
Not sure	2	1.2
Family history of depression		
No	158	92.9
Yes	12	7.1
Used any drug of abuse/substance in the last 3 months		
No	83	48.8
Alcohol	44	25.9
Alcohol, Marijuana	17	10.0
Alcohol, Cigarettes	13	7.6
Cigarettes	10	5.8
Tobacco	3	1.8

Table 3: Prevalence of Depression and Stress Related Anxiety due to Covid-19 Lockdown

Question	YES No. (%)	NO No. (%)
C1. Did you ever feel weighed down during COVID-19 lockdown?	112 (65.9)	58(34.1)
C2. Did you ever have sleep disturbances (increased need to sleep or decreased need to sleep) during COVID-19 lockdown?	96(56.5)	74(43.5)
C3. Did you ever have increased or decreased appetite during COVID-19 lockdown?	83(48.8)	87(51.2)
C4. Did you ever feel guilty of your life during COVID-19 lockdown?	91(53.5)	79(46.5)
C5. Did you ever lose your energy and became weak during COVID-19 lockdown?	87(51.2)	83(48.8)
C6. Did you ever lose your concentration while performing or doing any task during COVID-19 lockdown?	101(59.4)	69(40.6)
C7. Did you ever feel worthless at some point during COVID-19 lockdown?	74(43.5)	96(56.5)
C8. Did you ever think of ending your life at some point during COVID-19 lockdown?	55(32.4)	115(67.6)
C9. Did you ever feel like your heart was beating so fast due to fear of nothing during COVID-19 lockdown?	126(74.1)	44(25.9)
C10. Did you ever feel like living on this world is so stressful during COVID-19 lockdown?	119(70)	51(30)
C11. Did you ever panic for nothing during COVID-19 lockdown?	97(57.1)	73(42.9)



The figure above shows that 57% of the total study population which is 97 of 170 had depression and

Stress Related Anxiety due to Covid-19 Lockdown while 43% were not depressed.

Table 4: Relationship between Depression and Stress Related Anxiety Disorder with Socio-Demographics Factors

Variables	Frequency (n=97)	Proportions (%)
Sex		
Male	59	
Female	38	38.8
Age(years)		
18-25	53	31.2
26-33	91	53.5
34-40	26	15.3
Marital Status		
Married/ Co-habiting	76	44.7
Never married	40	23.5
Widowed	11	6.5
Separated/ divorced	43	25.3
Place of Residence		
Outside Ishaka	69	40.6
Within Ishaka	101	59.4
Education Level		
None	8	4.7
Primary	75	44.1
Secondary	68	40
University/Technical	19	11.2
Employment Status		
Employed	27	15.9
No formal employment	102	60.0
Unemployed	41	24.1
Cancer		
Yes	2	1.2
No	168	98.8
Unknown	0	0.0
Diabetes		
Yes	11	6.4
No	159	93.5
Not sure	0	0.0
Heart related diseases		
Yes	3	1.8
No	167	98.2
Respiratory related diseases		
Yes	33	19.4
No	135	79.4
Not sure	2	1.2
Family history of depression		
No	158	92.9
Yes	12	7.1
Used any drug of abuse/substance in the last 3 months		
No	83	48.8
Alcohol	44	25.9
Alcohol, Marijuana	17	10.0
Alcohol, Cigarettes	13	7.6
Cigarettes	10	5.8
Tobacco	3	1.8

Multivariate Presentation of the Relationship Between Depression and Stress Related Anxiety
Table 5: Relationship between Depression and Stress Related Anxiety Disorder with Underlying Medical Conditions

Variables	Frequency (n=170)	Proportions (%)
Sex		
Male	104	61.2
Female	66	38.8
Age(years)		
18-25	53	31.2
26-33	91	53.5
34-40	26	15.3
Marital Status		
Married/ Co-habiting	76	44.7
Never married	40	23.5
Widowed	11	6.5
Separated/ divorced	43	25.3
Place of Residence		
Outside Ishaka	69	40.6
Within Ishaka	101	59.4
Education Level		
None	8	4.7
Primary	75	44.1
Secondary	68	40
University/Technical	19	11.2
Employment Status		
Employed	27	15.9
No formal employment	102	60.0
Unemployed	41	24.1
Cancer		
Yes	2	1.2
No	168	98.8
Unknown	0	0.0
Diabetes		
Yes	11	6.4
No	159	93.5
Not sure	0	0.0
Heart related diseases		
Yes	3	1.8
No	167	98.2
Respiratory related diseases		
Yes	33	19.4
No	135	79.4
Not sure	2	1.2
Family history of depression		
No	158	92.9
Yes	12	7.1
Used any drug of abuse/substance in the last 3 months		
No	83	48.8
Alcohol	44	25.9

Alcohol, Marijuana	17	10.0
Alcohol, Cigarettes	13	7.6
Cigarettes	10	5.8
Tobacco	3	1.8
Question	YES No. (%)	NONo (%)
C1. Did you ever feel weighed down during COVID-19 lockdown?	112 (65.9)	58(34.1)
C2. Did you ever have sleep disturbances (increased need to sleep or decreased need to sleep) during COVID-19 lockdown?	96(56.5)	74(43.5)
C3. Did you ever have increased or decreased appetite during COVID-19 lockdown?	83(48.8)	87(51.2)
C4. Did you ever feel guilty of your life during COVID-19 lockdown?	91(53.5)	79(46.5)
C5. Did you ever lose your energy and became weak during COVID-19 lockdown?	87(51.2)	83(48.8)
C6. Did you ever lose your concentration while performing or doing any task during COVID-19 lockdown?	101(59.4)	69(40.6)
C7. Did you ever feel worthless at some point during COVID-19 lockdown?	74(43.5)	96(56.5)
C8. Did you ever think of ending your life at some point during COVID-19 lockdown?	55(32.4)	115(67.6)
C9. Did you ever feel like your heart was beating so fast due to fear of nothing during COVID-19 lockdown?	126(74.1)	44(25.9)
C10. Did you ever feel like living on this world is so stressful during COVID-19 lockdown?	119(70)	51(30)
C11. Did you ever panic for nothing during COVID-19 lockdown?	97(57.1)	73(42.9)

DISCUSSION

This study set out to determine the prevalence of depressive and Stress Related Anxiety due to Covid-19 Lockdown in Bushenyi Ishaka Municipality as well as the demographic, social and clinical factors that are associated with depression and stress related anxiety due to Covid-19 lockdown in these people. The prevalence of depression and stress related anxiety due to Covid-19 lockdown was found to be 57%. This suggests a high burden of depressive and stress related anxiety due to Covid-19 Lockdown as compared to a prevalence of 5.2 – 12.9% in the general population [15]. This figure includes people with major depressive episodes and people with underlying diseases. This prevalence was higher than many other studies like in the study by Dasa et al. [16] in Eastern Ethiopia which found a prevalence of depression at 51.9%. This is possibly due to the use of a diagnostic tool in this study as compared to screening tools used in other studies.

Factors Associated with Depressive and Stress Related Anxiety Due to Covid-19 Lockdown.

Depression and stress related anxiety due to Covid-19 Lockdown was more prevalent among female participants. Females were almost twice more likely to be depressed than males. Similar findings are reflected in a study by Albert [17] in 2015 where females were more likely to be depressed than males. In another study in Eastern Ethiopia by Dasa et al.

[16], females were more likely to be depressed. The association between depression and stress related anxiety due to Covid-19 lockdown and females could possibly be due to female hormones like estrogen and also social roles of women in society [18]. Older age is often associated with more depression as was found in this study. Being above 30 years was associated with more depression and stress related anxiety due to Covid-19 lockdown compared to being aged below 30 years which was protective for depression and stress related anxiety due to Covid-19 lockdown. However, reasons for this are not clear. Being separated, divorced or widowed showed two times higher chances of having depression and stress related anxiety due to Covid-19 lockdown. This is similar to results from a study by Adeniyi et al. [19] in Nigeria which showed that unmarried participants were more likely to be depressed. This could be due to reduced social support in the face of a chronic illnesses [16]. Participants with lower level of education were more likely to have depression and stress related anxiety due to Covid-19 lockdown than their counterparts with higher education. This is in agreement with results from a study by Njim et al. [20] among Nursing students in Cameroon which showed that depression was more common among people with low education attainment. Higher level of education leads to better income and access to a wide

range of health services, hence better (mental) health outcomes. Level of education was independently associated with depression and stress related anxiety due to Covid-19 lockdown even at multivariate analysis. Participants with no formal employment were twice more likely to have depression and stress related anxiety due to Covid-19 lockdown than those with employment and unemployed. Unemployment affects one's socio-economic status and this increases the individual's risk of having depression and stress related anxiety due to Covid-19 lockdown. Similar findings are reflected in the study carried out by Issa et al. [21] at a university teaching hospital outpatient clinic in Nigeria. In this study, people with a family history of depression were about four times more likely to be depressed at the bivariate analysis. At the multivariate analysis, family history of depression and stress related anxiety due to Covid-19 lockdown was associated with depression and stress related anxiety due to Covid-19 lockdown. This agrees with findings from Mayston et al. [22] in a study in sub-Saharan

This study was cross-sectional in design; therefore, directionality of causation between depression and stress related anxiety due to Covid-19 lockdown and other factors like underlying diseases could not be determined. Further longitudinal studies are required to examine directions of causality in associations between other diseases and depression and stress related anxiety due to Covid-19 lockdown. This was a communal based sample which is not representative of the hospital hence the results may not be generalized to the community population. Data was collected over a short period hence the study participants were not well distributed across the calendar year. The prevalence of depression and

Africa where family history of mental illness increased chances of being depressed in people with underlying diseases. Having cancer doubled the chances of a person having depression and stress related anxiety due to Covid-19 lockdown. This association was statistically significant even at multivariate analysis. This could be due to the fact that the symptoms tend to be prominent in the intensive phase compared to the continuation phase of cancer [23, 24]. It is probable that the coughing, chest pain, night sweats and fevers affect an individual's quality of life in terms of sleep, appetite and self-esteem hence more chances of one being depressed. Co-morbidity with heart diseases was not significantly associated with depression and stress related anxiety due to Covid-19 lockdown in contrast to studies by Dasa et al. [16] which have all shown a significant association between underlying diseases with depression and stress related anxiety due to Covid-19 lockdown.

CONCLUSION

stress related anxiety due to Covid-19 lockdown is high and was associated with low education level, being with underlying diseases and family history of depression and stress related anxiety due to Covid-19 lockdown.

Recommendations

Mental illnesses like depression should be routinely screened and managed among people. This can be achieved through regular training of hospital staff about common mental illnesses like depression to enable them screen for these disorders and manage the minor cases but refer the severe ones.

REFERENCES

1. Vivalya, B. M. N., Ayodeji, O. A., Mutuka, H. M., Kasereka, L., Muyisa, M. M. V., Muhonhya, J. K., & Kahindo, J. B. (2021). Mental Health and Social Distancing During COVID-19 in African Settings. *The Journal of Medical Research*. 7(1), 1-3.
2. Aja P.M., Awoke J.N., Ani O.G., Ekpono E.U., Ale B.A., Igwenyi I.O., Agu P.C., Ogwoni H.A., Aja L., Alum E.U., Awuchi C.G., & Obeten K. E. (2022). Cytokine storms may underlay the molecular basis of covid-19 severity in infected patients. *KJHS*, 2(1):44-61. https://kjhs.kiu.ac.ug/assets/articles/_cytokine-storms-may-underlay-the-molecular-basis-of-covid-19-severity-in-infected-patients.pdf.
3. Obeagu, E. I., Scott, G. Y., Amekpor, F., Ugwu, O. P. C., & Alum, E. U. (2021). COVID-19 infection and Diabetes: A Current Issue. *International Journal of Innovative and Applied Research*. 11(01): 25-30. DOI: 10.58538/IJIAR/2007. DOI URL: <http://dx.doi.org/10.58538/IJIAR/2007>.
4. World Health Organization. (2020). *Advice for Public: Protecting Yourself and Others from Spread of COVID-19*. Retrieved August 22, 2021, from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>
5. Liu, Y., Gayle, A., Wilder-Smith, A., & Rocklöv, J. (2020). The reproductive number of COVID-19 is higher compared to SARS coronavirus. *J. Travel Med.*, *taaa021*, 27.
6. Zhang, J., Wu, W., Zhao, X., & Zhang, W. (2020). Recommended psychological crisis intervention response to the 2019 novel coronavirus pneumonia outbreak in China: A model of West China Hospital. *Precis. Clin. Med.*, 3, 3-8.
7. Vivalya, B. M. N., Forry, J. B., Ayodeji, O. A., Nzanzu, A. K., Mwalitsa, J. P. P., & Kirimuhuzya, C. (2021). Lock down, Social Distancing and Mental Health during the COVID-19 Pandemic

- in African Settings: The People's Perspectives, Challenges, and Opportunities in the Democratic Republic of Congo. *J Clin Res Bioeth. S*, 8.
8. European Centre for Disease Prevention and Control. (2020). *COVID-19 Situation Update Worldwide*. Retrieved from European Centre for Disease Prevention and Control: <https://www.ecdc.europa.eu/en/geographical-distribution-2019-ncov-cases>
 9. Conrad, R. (2020). Universities' Response to Supporting Mental Health of College Students During the COVID-19 Pandemic. Retrieved from <https://www.psychiatrictimes.com/article/universities%E2%80%99-response-supportingmental-health-college-students-during-covid-19-pandemic>
 10. Domagala-Krecioch, A. M. (2013). The issue of loneliness in the period of "emerging adulthood." *European Scientific Journal*.
 11. Kukihara, H. Y. (2014). Trauma, depression, and resilience of earthquake/tsunami/nuclear disaster survivors of Hirono, Fukushima, Japan. *Psychiatry and Clinical Neurosciences*, 68, 524–533.
 12. Alum, E. U., Obeagu, E. I., Ugwu, O. P. C., Samson, A. O., Adepoju, A. O., & Amusa, M. O. (2023) Inclusion of nutritional counseling and mental health services in HIV/AIDS management: A paradigm shift. *Medicine*.102:41(e35673). <http://dx.doi.org/10.1097/MD.00000000000035673>. PMID: 37832059.
 13. Cohen, J. D. (2016). Distress Tolerance and Social Support in Adolescence: Predicting Risk for Internalizing and Externalizing Symptoms Following a Natural Disaster. *J Psychopathol Behav*, 38, 538–546.
 14. Wiegand, H., & Kish, L. (1968). Survey Sampling. John Wiley & Sons, Inc., New York, London 1965, IX + 643 S., 31 Abb., 56 Tab., Preis 83 s. *Biometrische Zeitschrift*. 10, 88–89. <https://doi.org/10.1002/bimj.19680100122>
 15. Brooks, S., Webster, R., Smith, L., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet*, 395, 912–920.
 16. Dasa, T. T., Roba, A. A., Weldegebreal, F., Mesfin, F., Asfaw, A., Mitiku, H., et al. (2019). Prevalence and associated factors of depression among tuberculosis patients in Eastern Ethiopia. *BMC Psychiatry*. Mar 1;19(1):82. doi: 10.1186/s12888-019-2042-6.
 17. Albert, P. R. (2015). Why is depression more prevalent in women? *J Psychiatry Neurosci*, 40(4):219–21. doi: 10.1503/jpn.150205. PMID: 26107348; PMCID: PMC4478054.
 18. Maslakçi, A., & Sürücü, L. (2022). Gender Effects on Depression, Anxiety, and Stress Regarding the Fear of COVID-19. *Trends in Psychol.*, 9:1–13. doi: 10.1007/s43076-022-00227-x. Epub ahead of print. PMCID: PMC9462605.
 19. Adeniyi, A.F., Okafor, N.C. & Adeniyi, C.Y. (2011). Depression and physical activity in a sample of nigerian adolescents: levels, relationships and predictors. *Child Adolesc Psychiatry Ment Health* 5, 16. <https://doi.org/10.1186/1753-2000-5-16>
 20. Njim, T., Mbang, C., Mouemba, D., Makebe, H., Toukam, L., Kika, B., et al. (2020). Determinants of depression among nursing students in Cameroon: a cross-sectional analysis. *BMC Nurs.*, 19:26. doi: 10.1186/s12912-020-00424-y. PMID: 32327933; PMCID: PMC7165407.
 21. Issa, B. A., Yussuf, A. D., & Kuranga, S. I. (2009). Depression comorbidity among patients with tuberculosis in a university teaching hospital outpatient clinic in Nigeria. *Ment Health Fam Med*. Sep;6(3):133–8. PMID: 22477903; PMCID: PMC2838651.
 22. Mayston, R., Frissa, S., Tekola, B., Hanlon, C., Prince, M., & Fekadu, A. (2020). Explanatory models of depression in sub-Saharan Africa: Synthesis of qualitative evidence. *Soc Sci Med.*, 246:112760. doi: 10.1016/j.socscimed.2019.112760.
 23. Kim, R. B., Phillips, A., Herrick, K., Helou, M., Rafie, C., Anscher, M. S., et al. (2013) Physical Activity and Sedentary Behavior of Cancer Survivors and Non-Cancer Individuals: Results from a National Survey. *PLoS ONE* 8(3): e57598. <https://doi.org/10.1371/journal.pone.0057598>
 24. Abisha Meji M, Dennison MS, Mustafa MM. Data-set of academic difficulties among students in western Uganda during COVID-19 induced lockdown. *Data in Brief*. 2021;35(10685):1.

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